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Perspective of decision makers on health programs that promote physical activity in Mexico

Perspectiva de tomadores de decisiones sobre programas de salud que promueven la actividad física en México

Santiago Andrés Henao Morán[1*]; Myriam Ruiz Rodríguez[2]; Eric Monterrubio Flores[3]; María de la Luz Arenas Monreal[3]

*henaosa@yahoo.com

[1] Instituto Nacional de Ciencia Médicas y Nutrición "Salvador Zubirán", Ciudad de México, México
[2] Universidad Industrial de Santander, Bucaramanga, Colombia
[3] Instituto Nacional de Salud Pública, Cuernavaca, México

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Abstract

Introduction: Promoting physical activity among the Mexican population is important because of its relationship with chronic degenerative diseases, which are the leading cause of death in Mexico. Program managers and directors are the ones who make decisions about policies and programs related to physical activity in the country. **Objective:** To analyze health programs in Mexico that include physical activity (PA) and the barriers and benefits of incorporating Physical Activity Professionals (PAP) in primary healthcare services. **Materials and methods:** Qualitative study was conducted in 2019, based on semi-structured interviews with Morelos Health Services (MHS) managers and the General Direction of Health Promotion (n = 15), which were analyzed using the framework method. **Results:** Three PA programs have infrastructure and human resources limitations, making it difficult to reach the entire population. The inclusion of PAP in primary health care services would mainly benefit from a reduction of hospitalization costs, with the main barrier being the lack of budget. **Conclusion:** These results are limited to the MHS. Therefore, it is necessary to explore the situation of PA programs in the health services of other states.

Keywords: Healthcare Professionals; Physical Activity, Health institution; Mexico; Primary Health Care; Health Promotion

Resumen

Introducción: Impulsar con la población mexicana la actividad física, cobra relevancia por su relación con las enfermedades crónicas degenerativas, las cuales ocupan los primeros lugares en mortalidad en México. Los responsables y directivos de los programas son quienes toman las decisiones sobre las políticas y programas relacionadas con la actividad física en el país. **Objetivo:** Analizar los programas de salud que incluyen actividad física (AF) en México y las barreras y beneficios de la incorporación de los Profesionales de Actividad física (PAF)

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en los equipos de salud del primer nivel de atención. **Metodología**: Estudio cualitativo efectuado en 2019, basado en entrevistas semiestructuradas a directivos de Servicios de Salud de Morelos (SSM) y de la Dirección General de Promoción de la Salud (n=15), analizadas con el *método framework*. **Resultados**: Existen tres programas de actividad física, los cuales tienen limitaciones en infraestructura y recursos humanos lo que dificulta que lleguen a toda la población. La incorporación del profesional de actividad física, beneficiaria principalmente en la disminución de costos en la hospitalización, y la principal barrera es la falta de presupuesto. **Conclusiones:** Estos resultados están circunscritos a los Servicios de Salud de Morelos, es necesario explorar la situación de los programas de Actividad física en los servicios de salud de otros estados del país.

Palabras clave: Profesionales de los Servicios de Salud; Actividad Física; Instituciones de salud; México; Atención primaria de la salud, Promoción de la salud.

Introduction

For some years now, the Mexican health system has been proposing various strategies for the control and prevention of chronic diseases, trying to include physical activity as part of each intervention, some examples being the "National Agreement on Food Health" (ANSA for Spanish acronym) [1], the National Strategy for the Prevention and Control of Overweight, Obesity, and Diabetes [2], the UNEME Chronic Diseases [3], and some other interventions in institutions such as the Mexican Institute of Social Security [4].

Physical activity (PA) plays a crucial role in the prevention and management of chronic noncommunicable diseases [5-7]. Furthermore, PA is associated with improved functional capacity and individual psychosocial well-being [8,9]. In Mexico, 15.4% of scholars, 53.7% of adolescents, and 71.2 % of adults are active [10].

According to global estimates, 27.5% of the adult population and 81% of adolescents do not comply with the recommendations for aerobic exercise, so the health sector and other sectors must urgently promote physical activity among the population [11].

The leading role of health personnel in promoting PA has been well-documented [12,13], leading to the implementation of numerous strategies within the health sector to increase PA [14–16]. These interventions varied widely in terms of type, content, population, and human resources involved in their execution. They were also noted to have several limitations, including inadequate training, evaluation, and delivery of recommendations and counseling [16–19]; Other shortcomings included the lack of appropriate materials tailored to different population groups [17,20]; and the absence of organizational structure to ensure personnel training and support for PA promotion strategies [17,20]; consultation time and medical team attitudes toward the effectiveness of PA counseling [18-22].

In Brazil and other countries, PAP have been incorporated into the Family Health Support Unit (NASF to acronym in Portuguese) [23]. The evaluation of community physical activity programs in Brazil reports that they have a positive impact on the health indicators of users, contributing to an increase in physical activity, have had an impact on the control of hypertension and diabetes, and have reduced the costs of care in health systems [24]. Similarly, in Chile, the Vida Sana Program [25] includes PAP to conduct actions related to exercise and PA for patients at risk. In contrast, in Argentina, PAP participation is not regulated by the national health system [26]; participation occurs individually and is isolated in some health units, in various pathologies.

In Mexico, the Specific Action Program Food, and PA, 2013-2018 [27], incorporated PA as one of the key actions conducted by the health team with the population. In 2016, in the "Guidelines for Operational Personnel of the National Strategy for the Prevention and Control of Overweight, Obesity, and Diabetes, in the Primary Healthcare (PHC) System," the inclusion of a physical activator (PAP) was stipulated by health jurisdiction as part of the health teams for care in the health program [2]. However, this profession is not considered part of the health teams in health institutions.

Given the challenges associated with PA counseling provided by medical professionals and the significant burden of cardiometabolic diseases as a public health issue in Mexico, this study aimed to analyze the health programs that include PA, the barriers and benefits of incorporating PAP into PHC services in Mexico.

Methodology

A qualitative study based on ethnomethodology elements [28] and the conceptual guidelines of the Pan American Health Organization and other organizations for the management analysis of human resources in health related to planning, training, performance, employment management, and institutional and organizational development [29–30].

Participant recruitment and selection

We recruited participants using a criterion-based sampling, identifying key actors (decision makers) from Morelos Health Services (MHS) personnel and the General Directorate of Health Promotion of the Ministry of Health. The personnel´s functions were related to the health programs linked to PA and that could define the procedures of the health services. The selection of these actors was due to the fact that they influence decision-making in physical activity promotion programs in health services at national and local level. These health services are divided into three jurisdictions (zones) which encompass 176 health units. Among these are two Medical Specialties Units dedicated to Chronic Diseases (UNEMES_EC, for its acronym in Spanish), situated in Cuernavaca and Cuautla.

Data collection

Participants were interviewed either face-to-face at their workspaces or by telephone (2 participants). An interview guide was designed for the semi-structured interviews. The interviews were conducted between June and July 2019, recorded by two research team members (SAHM and LAM), and lasted 40-60 minutes.

The interview guide contained sixteen questions, of which the following were used as triggering questions: Do you think that the programs at the federal level that have components for the promotion of PA meet the needs of the different population groups? Which type of healthcare professionals should have the skills to promote PA among the population using the services? Why these types of professionals? What advantages do you see in including PAE in healthcare teams? What do you consider to be the barrier that would prevent PAE from getting involved? All participants answered the whole interview.

Data Analysis

The interviews were transcribed in a Word 2013-word processor and manually coded. The data was analyzed using framework method [31], which consists of five phases: reading of the interviews by the research team to familiarize themselves with the data, topic identification, coding, organization of the data in a matrix, and interpretation. Three categories were identified and are presented in this manuscript: 1) Health programs with the PA component: defined as those health programs that have PA components, 2) Participation of the PAP within the health team: This category was defined as the decision makers' view of the professionals who have the competence to carry out actions with the PA population and the role that the PAP plays in health teams, and 3) Benefits and barriers of incorporating the PAP into the health team. This category was defined as all those barriers and benefits related to the PAP incorporation in health teams in the PHC system. Within each of these categories, four codes were identified (**Table 1**). From the analysis of this information, the results presented in the following section were organized.

Table 1: Categories and Codes of Federal and State Health Services decision makers' opinion

Categories	Definition	Codes
Health programs with the PA component: defined as	Health programs that have PA components and the impact they might have on the population.	Federal Programs State Programs Relationship with other programs with PA or Exercise Program evaluation
Participation of the PAP within the health team	Decision makers' view of the professionals who have the competence to conduct actions with the PA and the role that the PAP plays in health teams.	Physical activity prescription Professionals responsible for PA Physical activity professionals Competence of professionals promoting exercise prescription
Benefits and barriers of incorporating the PAP into the health team	Defined as all those barriers and benefits related to the PAP incorporation in health teams in the PHC system.	PAP incorporation areas Benefits of adopting a PAP Barriers to PAP adoption Changes to the organization chart

PHC: Primary Healthcare, PAP: Physical Activity Professional, PA: Physical Activity

The study was approved by the Research Ethics Committee, the research committee of the National Institute of Public Health, and the MHS Research Commission. Each participant was given a letter requesting their consent, explaining the purposes of the study, the confidentiality of the information, and requesting authorization to audio record the interviews. The audios were identified with a numerical record, without the names of the interviewees.

Results

Participants were recruited from MHS managers or middle-middle rank workers (n = 13) and nationwide workers (n = 2). Their age ranged from 33 to 63 years, twelve (80%) were female, and 53.3% had a master's degree. Regarding the time spent by professionals associated with the office, 40% (n=6) have been there for over two years. 66.7% (n=10) are at the state level, and 20% (n =3) at the jurisdictional level (**Table 2**).

Table 2. Sociodemographic characteristics of Federal and State Health Services decision makers**.**

Characteristics (n=15)	*n (%)*
Ages, mean(range)	42.3(33-63)
Sex	
Fémale	12 (80.0)
Male	3 (20.0)
Academic training	
Specialty	2 (13.3)
Master's degree	8 (53.3)
Bachelor's degree	5 (42.4)
Level of dependency	
State	10 (66.7)
Jurisdictional	3 (20.0)
Federal	2 (13.3)
Time in office	
Less than a year	5 (33.3)
One to two years	4 (26.7)
More than two years	6 (40.0)

Health programs with the PA component (Table 3)

The federal interviewee identified three programs of the General Directorate of Health Promotion with incorporation of PA: 1) Food and Physical Activity Program, that has been in operation since 2013, 2) Healthy Environments and Communities Program that has been operating since 2013. and 3) Promotion and Social Determinants Program, operating since 2002. (Folio 013_federal:4-7, 13-15). However, all the interviewees reported that there has not been an evaluation of these, so the impact that their activities have achieved is unknown.

Table 3. Testimonials. Physical Activity Programs

"... In the case of health promotion, we have the nutrition and physical activity program. This is a program that is implemented at the federal level, which must be operated in all the states, and has been in force since 2013" …" There are two other programs, one of which is the healthy environments and communities program which also includes a component related to promoting physical activity …" (Folio 013_federal: 4-7, 13-15).
"... Maybe they do not comply with what is intended to be achieved. We are, suddenly, very limited in matters of supplies and consultations, for example, in medicine. Doctors are not trained enough to advise and say, "this group has this exercise, this other group, and so on…" , (Folio 006 SSM: 13-18).
"... No, because they are only focused on certain age groups, they are not covering all of them ..." (Folio 008 SSM: 12-13).
"I think he is trying to cover them, but they are not necessarily 100 percent compliant. Well, the population's requirement, I believe that there are groups that are left out ... "," ... from the organization, there is a lack, there is still a long way to go. "(Folio 001: 11-13).
"They propose how the strategy [at the federal level] and here in the state, through the Secretary of Health and the Health Services of Morelos, in the programs adjust to the needs of the entity" (Folio 005: 17-20).

The MHS interviewed commented that the General Directorate of Health Promotion programs do not have sufficient infrastructure or human resources, specifically PAP. This results in PA-related actions being targeted at specific groups (such as scholars, Mutual aid groups -GAM-, and UNEMES_EC), leaving the broader population underserved.

For the general population, massive events are held to promote PA in the municipalities, as well as the recovery of public spaces and dissemination in mass media. (Folio 006 MHS:13-18), (Folio 008 MHS:12-13).

They also noted that while program planning may be appropriate, its implementation is often inadequate due to the diversity of population characteristics and the varying contexts in which the MHS health centers are located. Additionally, they mentioned that the promotion of PA is approached, without tailoring it to specific diseases or population groups (Folio 001 MHS:11-13). Another aspect they pointed out is that at the state level, adjustments are made to federal programs, but there are no specific guidelines (Folio 005MHS:17-20).

Participation of the PAP in health teams (Table 4)

The interviewees pointed out the importance of actions to promote PA (Folio 013: 58-61) and the need for health services to have trained personnel to coordinate these actions with the population.

Table 4. Testimonials. Professionals' Physical Activity in Health Teams

"... The usefulness that I would see is that it would just begin to consider, the promotion of physical activity, as one of the important activities within the health unit, they could follow up on these recommendations, they could organize groups where they could engage in physical activity, they could invite the population to participate in this type of activity, they could sensitize their own, the rest of the health personnel on the importance of this type of activities, ... "(Folio 013: 58-61)
"... Activators (physical) their main function is to promote physical activity, promoters do other types of activities related to promotion and within their activities is to promote physical activity, and ideally well if we had health promoters in all the units, I think that they or the activators would be the ideal character, but the truth is that no, we do not have enough personnel to be each one, in each of the health units. " (Folio 013_federal: 48-52,207-210)
"The prescription is made by the doctor, in primary care. And, it is done, for example, we have itinerant groups of nutritionists and medical specialists in integrated medicine "(Folio 001_SSM: 115-118)" "The health promoter, the nurse of, the nurse can be general or auxiliary who is in the unit and the doctor, the general practitioner or the intern… In some cases, there is a nutritionist who also prescribes exercise. "(Folio 007_SSM: 96-98, 102)" "What professions, well, as such to prescribe, well the doctor ... "," ... and it seems to me that the best professional to know, and, according to the medical prescription, what they are going to be given , is the graduate in physical education, there is no more, that is, I know that there are doctors in rehabilitation, doctors in physical education as such, but how to say it, I believe that those who dedicate themselves, as such, to a study for four years, to see what type of exercise, we are going to see what muscles he activates, what type of patient he is, the graduate in physical education has those skills very well. " (Folio 010: 222, 225-233)
"The graduates in physical activity or sport, since they have sufficient academic training and knowledge to promote physical activity in the population ..." (Folio 014_federal: 75-77).
"Nursing and medicine ... they need to be trained so that they can prescribe these activities" (Folio 012: 238,240-241)
"We doctors are not so trained as qualified to give as advice to say, well, this group has such exercise, this group or the other, and so on." (Folio 006 SSM: 16-18).
"... and I believe that incorporating a physical activator into these nuclei would be, that is, as a complement because most of the patients that we have in the first level of care are chronic patients ..." should be part of what the doctor prescribes as a treatment, that is, we are talking about medical treatment, although it is not the doctor who provides it, it must be someone specialized in the subject (Folio 001 SSM: 181-183,241-244)

Federal-level interviewees indicated that the Ministry of Health employs human resources with physical education backgrounds. Hired for one-year terms with federal funds allocated to states across the country. It is mentioned that PA actions are conducted by health promoters and PAPs (Folio 013_federal:48-52,207-210).

Interviewed from MHS mentioned that doctors, nutritionists, and, in some cases nurses and health promoters are the ones who provide indications of PA to the population (Folio 001_MHS: 115-118), (Folio 007_MHS:96-98, 102).

It was mentioned that the PAP are the professionals who have the skills to provide the population with PA indications (Folio 010 MHS:222, 225-233), (Folio 014_federal:75-77) and that the members of the health team, such as doctors, nurses, and health promoters can provide PA indications after training (Folio 012MHS:238,240-241). They also indicated that health personnel do not receive sufficient training to provide PA recommendations (Folio 006 MHS:16-18).

Most interviewees identify the role of PAPs and the benefit of their incorporation into health teams. (Folio 001 MHS:181-183,241-244).

Benefits and barriers of incorporating the PAP into the healthcare team (Table 5).
All interviewees mentioned that the main benefits of joining the PAP to the healthcare teams would be the improvement in the population's health; a decrease in healthcare costs; and the awareness of the population towards AF. (Folio 003 MHS: 263-266) (Folio 006 MHS: 286-290), (Folio 009: 332-336).

Table 5. Benefits and Barriers of Incorporating Physical Activity Professional

Benefits
"Well, to begin with, I think everything that is the impact on hospital costs would be greatly reduced. There would not be as many patients with sequels from diseases that are mainly caused by obesity." (Folio 003: 263-266).
"... I believe that people or the general population would have perhaps a different education, an education that would allow them to focus and start exercising and see it naturally..." (Folio 006: 286-290).
"Well, there will be a greater adherence to treatment, we will have better controls in people, and by reducing the risk of obesity, we are going to see an impact on the reduction of ... well, those chronic diseases appear degenerative, such as diabetes or hypertension. " (Folio 009: 332-336).
Barriers
"Financial resources, which is the main thing, the creation of positions and ensuring we have the financial resources to hire those human resources." (Folio 004: 209-211).
"Look, right now the main barrier is that they authorize it (Physical activator), or that it remains within the profesiogram of the Secretary of Health if it is already there, I mean the promoter is there, but it is not professionalized, if you go to the sectoral job catalog, you'll find it there.. "I cannot hire a physical activator with an administrative code. " ... "there is a question of the salary gap ..." (Folio 005: 690-693).
Well, I think number one is always the budget. The second is the activation of codes, we go for activation codes, "Although, I need to exercise the federal government does not give me a physical activator code, for example, I can hire him as a promoter and I pay him as a promoter, but I do not pay him as a physical education graduate, for example, in this case, nor as a physical activator but as a promoter. "(Folio 010: 366-373).

On the other hand, the main barriers identified are related to the budget allocated to this area, as well as the organizational change required to integrate PAP and create positions with this professional profile. Federal interviewees highlighted that the PAP profile falls under the General Directorate of Human Resources, rather than the General Directorate of Health Promotion. (Folio 004:209-211), (Folio 005:690-693), (Folio 010:366-373).

Discussion

This study reveals that while there are health programs in Mexico that include PA as a component, they face significant challenges due to inadequate infrastructure, a shortage of human resources, and the ability to reach the entire population human resources, which leads to limitations in covering the entire population. These challenges have been identified in implementing and expanding health policies and programs related to PA and healthy eating [15,32]. Moreover, a lack of program evaluation and assessment of their impact was observed. In the context of health systems, evaluating the implementation process of programs and policies is essential to identifying areas for improvement that ensure long-term sustainability [33].

According to the interviewees, MHS health personnel receive insufficient training to provide PA recommendations. They noted that the PAP is not integrated into all PHC units, despite the belief that such personnel should be included. This aligns with observations from several authors [34,35] who highlight that in other countries, PAP is considered an integral part of PHC teams. [35,36]. Additionally, several authors report that one of the main needs in PHC is the appropriate actions and indications of PA and exercise prescription [37–39].

The interviewees emphasize that this professional should be part of a health team led by a medical professional, given the key role that doctors play in promoting PAP [40]. They also recognize the importance of the PAP and acknowledge that its inclusion in first-level health teams would contribute to improved health outcomes and reduce hospitalization costs, as demonstrated in other studies [41,42]. In Brazil, the inclusion of PAP is considered a fundamental human resource in health teams in the first level of care [43,44].

Participants in our study also point to a lack of human resources in health programs that include PA. Policymakers in primary health care need to address the challenge of overcoming the barriers that many groups face in participating in PA[45]. Including PAPs at this level of care would increase access to PA programs, especially considering that physical inactivity is not evenly distributed and is particularly high in populations living with chronic diseases and those with high socioeconomic deprivation [45].

The main difficulties mentioned by the interviewees in this study regarding the inclusion of the PAP in primary care teams were budgetary constraints and the absence of specific codes for hiring PAPs in the "Profesiograma" (Sectoral Catalog of Positions of the Medical, Paramedical, and Related Branch) of the Ministry of Health. This is like what was reported in a study conducted in Colombia, where PAPs have no place in health services [46]

To overcome these barriers, policymakers need to conduct a prospective analysis of the disease burden in Mexico associated with physical inactivity and prioritize collective transdisciplinary interventions that increase the involvement of PA professionals. Based on these analyses, the authorities will be able to redirect budget items to support the integration of PA. This change may take time, as it requires not only epidemiological, cost-effectiveness, and financial analyses, but also political will to make these organizational adjustments. However, such changes would likely have a significant positive impact on population health.

In contrast, In Brazil, the inclusion of a well-trained PAP in health care teams has produced satisfactory results in the management of chronic non-communicable diseases at the primary care level [36, 47] Various authors report that one of the primary needs at the first level of care is the appropriate actions and instructions for PA [37-39] and PAPs possess the necessary skills to make a substantial contribution.

In Mexico, the '2016 Guidelines for the Operational Staff of the National Strategy for the Prevention and Control of Overweight, Obesity, and Diabetes in the First Level of Care [2] recommend that one physical activity technique per health jurisdiction should be included in the staff for PA training and care. However, this profession is not formally integrated into health teams.

To address this gap, it is crucial to establish a comprehensive PA program in Mexico, linked to a public health promotion policy grounded on an educational process that goes beyond merely transferring knowledge, increasing PA levels, or improving physical fitness. The program should emphasize the active involvement and commitment of all stakeholders involved within an interdisciplinary health team, to enhance patient care, and strengthen interventions that have positive consequences for the population's health [48].

The findings of this work suggest the need for alternatives to adapt the professional profiles required by health systems and the promotion of interdisciplinary healthcare teams to improve the efficiency of chronic disease care. This involves analyzing the feasibility of incorporating PAP as a permanent member of healthcare teams nationwide and making the necessary adjustments to the Profesiograms of the Ministry of Health to align with the population needs as outlined by PAHO in the initiative on human resources [29].

The findings of this study are specific to the context and participating population and cannot be generalized to other areas or regions of the country. Accordingly, further research is necessary to determine whether the observed situation in the MHS mirrors healthcare services in other states. Additionally, the investigation into the competencies required by healthcare team members to effectively implement interventions outlined in PA programs is needed. A notable aspect of this research is that it incorporates the viewpoints of mid-level managers, MHS staff, and federal decision-makers, providing insight into the national situation regarding PA programs in the country.

Authors' contributions

SAHM conducted the statistical analysis and wrote the original draft of the manuscript.

LAM, SAHM acquired and curated the study data. LAM, SAHM, MRR, EMR engaged in the conception and design of the study and in reviewing and editing the final manuscript.

SAHM is the guarantor of this work and, as such, has full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Ethical considerations

Ethics approval and consent to participate. The study was approved by the Research Ethics Committee, the research committee of the National Institute of Public Health (Reference: CI: 983, 13th February 2019), and the MHS research commission. The audios were identified with a numerical record, without the names.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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References

1. Córdova-Villalobos JÁ. El Acuerdo Nacional para la Salud Alimentaria como una estrategia contra el sobrepeso y la obesidad. Cirugía y cirujanos. 2010; 78(2): 105-107. https://www.medigraphic.com/pdfs/circir/cc-2010/cc102a.pdf

2. Gobierno de México-Secretaría de Salud. Lineamientos 2016 para el Personal Operativo de la Estrategia Nacional para la Prevención y el Control del Sobrepeso, Obesidad y Diabetes, en el Primer Nivel de Atención. Cent Nac Programas Prev y Control Enfermedades CENAPRECE. 2016; 42, México. Disponible en: https://www.gob.mx/cms/uploads/attachment/file/47726/LineamientosPersonalOperativo_ENPCSOyD2016.pdf [Consulted October 12 2018]

3. Gobierno de México-Secretaría de Salud. Manual de procedimientos para la atención de pacientes en UNEME Enfermedades Crónicas: Sobrepeso, Riesgo Cardiovascular y Diabetes. México; 2011. Disponible en: https://www.gob.mx/salud/documentos/manual-de-procedimientos-para-la-atencion-de-pacientes-en-uneme-ec

4. Instituto Mexicano del Seguro Social. Procedimiento para la planeación, promoción, ejecución y seguimiento del Programa de Atención Social a la Salud (PASS). Clave 3110-003-060. (IMSS (ed.); 2016. Disponible en: https://www.imss.gob.mx/sites/all/statics/pdf/manualesynormas/3000-001-025.pdf

5. Caprara G. Mediterranean-type dietary Pattern and Physical Activity: The Winning Combination to Counteract the Rising Burden of Non-Communicable Diseases (NCDs). Nutrients 2021; 13(2): 429. doi: https://doi.org/10.3390/nu13020429

6. Ostrowska-Nawarycz L, Nawarycz M, Nawarycz T. Physical Activity and Prevention of Chronic Non-communicable Diseases. In: Kelishadi, R. (eds) Healthy Lifestyle. Integrated Science, vol 3. Springer, Cham. doi: https://doi.org/10.1007/978-3-030-85357-0_6

7. Anderson E, Durstine JL. Physical activity, exercise, and chronic diseases: A brief review. Sports Med Health Sci. 2019; 1(1): 3-10. doi: https://doi.org/10.1016/j.smhs.2019.08.006

8. Stanton R, Happell B, Reaburn P. The mental health benefits of regular physical activity, and its role in preventing future depressive illness. Nursing: Research and Reviews. 2014; 4: 45-53. doi: https://doi.org/10.2147/NRR.S41956

9. Kim YS, Park YS, Allegrante JP, Marks R, Ok H, Cho K, et al. Relationship between physical activity and general mental health. Prev Med. 2012; 55(5): 458-63. doi: https://doi.org/10.1016/j.ypmed.2012.08.021

10. Medina C, Jáuregui A, Hernández C, González C, Olvera A, Blas N, et al. Prevalencia de comportamientos del movimiento en población mexicana. Salud Publica Mex. 2023; 65(1): 259-267. doi: https://doi.org/10.21149/14754

11. Bull FC, Al-Ansari SS, Biddle S, Borodulin K, Buman MP, Cardon G, et al. Organization 2020 guidelines on physical activity and sedentary behaviour. Br J Sports Med. 2020; 54(24): 1451-1462. doi: https://doi.org/10.1136/bjsports-2020-102955

12. Netherway J, Smith B, Monforte J. Training Healthcare Professionals on How to Promote Physical Activity in the UK: A Scoping Review of Current Trends and Future Opportunities. Int J Environ Res Public Health. 2021; 18(13): 6701. doi: http://doi: 10.3390/ijerph18136701

13. Albert FA, Crowe MJ, Malau-Aduli AEO, Malau-Aduli BS. Physical Activity Promotion: A Systematic Review of The Perceptions of Healthcare Professionals. Int J Environ Res Public Health. 2020; 17(12): 4358. doi: http://doi: 10.3390/ijerph17124358.

14. Stoutenberg M, Galaviz KI, Lobelo F, Joy E, Heath GW, Hutber A, et al. A Pragmatic Application of the RE-AIM Framework for Evaluating the Implementation of Physical Activity as a Standard of Care in Health Systems. Prev Chronic Dis. 2018 May 10;15: E54. doi: https://doi.org/10.5888/pcd15.170344e

15. Lion A, Vuillemin A, Thornton JS, Theisen D, Stranges S, Ward M. Physical activity promotion in primary care: a Utopian quest? Health Promot Int. 2019; 34(4): 877-886. doi: http://doi: 10.1093/heapro/day038

16. Rennie K, Ahern A, King B, Spillman L, Hartley P, Lawlor E, et al. Integration of Physical Activity Promotion within Primary and Secondary Care Settings: Rapid Evidence Review and Lessons from Practice Case Studies. Public Healh England. 2020. https://doi.org/10.17863/CAM.64187

17. Muellmann S, Steenbock B, De Cocker K, De Craemer M, Hayes C, O'shea M, et al. Views of policy makers and health promotion professionals on factors facilitating implementation and maintenance of interventions and policies promoting physical activity and healthy eating: results of the DEDIPAC project. BMC Public Health 2017; 17: 932 doi: https://doi.org/10.1186/s12889-017-4929-9

18. Jørgensen TK, Nordentoft M, Krogh J. How do general practitioners in Denmark promote physical activity?. Scand J Prim Health Care. 2012; 30(3): 141-6. doi: https://doi.org/10.3109/02813432.2012.688710

19. Hall LH, Thorneloe R, Rodriguez-Lopez R, Grice A, Thorat MA, Bradbury K, et al. Delivering brief physical activity interventions in primary care: a systematic review. Br J Gen Pract. 2022; 72(716): e209-e216. doi: https://doi.org/10.3399/BJGP.2021.0312

20. AuYoung M, Linke SE, Pagoto S, Buman MP, Craft LL, Richardson CR, et al. Integrating Physical Activity in Primary Care Practice. Am J Med. 2016; 129(10): 1022-9. doi: https://doi:10.1016/j.amjmed.2016.02.008

21. Shuval K, Leonard T, Drope J, Katz DL, Patel AV, Maitin-Shepard M, et al. Physical activity counseling in primary care: Insights from public health and behavioral economics. CA Cancer J Clin. 2017; 67(3): 233-244. doi: https://doi:10.3322/caac.21394.

22. Omura JD, Watson KB, Loustalot F, Fulton JE, Carlson SA. Primary Care Providers' Awareness of Physical Activity-Related Intensive Behavioral Counseling Services for Cardiovascular Disease Prevention. Am J Health Promot. 2019; 33(2): 208-216. doi: http://doi:10.1177/0890117118784226

23. Araujo JC, Santos K, Martins C, Araujo TC, Soares A. Inclusão Do Educador Físico Na Atenção Primária À Saúde: Revisão Integrativa. SANARE-Revista de Políticas Públicas. 2018; 17(1): 74–83. doi: https://doi.org/10.36925/sanare.v17i1.1225

24. Silva A, Prates EJ, Malta D. Evaluation of community physical activity programs in Brazil: a scoping review. Cad. Saúde Pública. 2021; 37(5): e00277820. doi: https//:doi:10.1590/0102-311X00277820

25. Ministerio de Salud de Chile. Orientaciones y Lineamientos Programa Vida Sana. Santiago, Chile. 2015: 146. Disponible en: https://extranet.who.int/ncdccs/Data/CHL_B10_Orientaciones%20VIDA%20SANA.pdf [accessed 3 October 2021]

26. Carrera S; Murisi AR. La Actividad Física y sus posibles incumbencias en el ámbito hospitalario. Boletín Electrónico REDAF. 2012; 2(26). https://www.ifes.edu.ar/contenido/dl.php?f=MzkzI05ldXF16W4gLSBDQVMgQ2FycmVyYSB5IE1IcmlzaS5wZGY

27. Gobierno de México-Secretaría de Educación Pública, Plan de acción específico: alimentación y actividad física 2013-2018, México, SEP, México; 2014. Disponible en: https://www.gob.mx/salud/documentos/dgps-nuestros-programas [accessed 4 Abril 2018]

28. Caballero JJ. Etnometodología: una explicación de la construcción social de la realidad. Revista Española de Investigaciones Sociológicas (REIS), 1991; (56): 83-144. doi: https://doi.org/10.2307/40199495

29. World Health Organization. Pan American Health Organization. Strategy on human resources for universal access to health and universal health coverage. In 29th Pan American Sanitary Conference. Washington. 2017. Spanish. doi: https://iris.paho.org/handle/10665.2/53838

30. Bustos V, Villarroel G, Ariza F, Guillou M, Palacios I, Cortez L, et al. Análisis de la gestión de recursos humanos en los modelos de salud familiar, comunitaria e intercultural de los países andinos, Anales de la Facultad de Medicina. Lima: Universidad Nacional Mayor de San Marcos, Vicerrectorado de investigación. 2015. 76: 49-55. doi: https://doi.org/10.15381/anales.v76i1.10971

31. Gale NK, Heath G, Cameron E, Rashid S, Redwood S. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. BMC Med Res Methodol. 2013; 13(1): 1–8. doi: https://doi.org/10.1186/1471-2288-13-117

32. Heath GW. The Role of the Public Health Sector in Promoting Physical Activity: National, State, and Local Applications. Journal of Physical Activity & Health. 2009; 6(2): 159-167. doi: https://doi: 10.1123/jpah.6. s2.s159

33. Langlois EV, Mancuso A, Elias V, Reviez L. Embedding implementation research to enhance health policy and systems: a multi-country analysis from ten settings in Latin America and the Caribbean. Health Res Policy Sys. 2019;17: 85. doi: https://doi.org/10.1186/s12961-019-0484-4

34. Lobelo F, Rohm D, Sallis R, Garber MD, Billinger SA, Duperly J, et al. Routine Assessment and Promotion of Physical Activity in Healthcare Settings: A Scientific Statement from the American Heart Association. Circulation. 2018; 137(18): e495-e522. doi: https://doi:10.1161/CIR.0000000000000559

35. Zhou S, Davison K, Qin F, Lin KF, Chow BC, Zhao JX. The roles of exercise professionals in the health care system: A comparison between Australia and China. J Exerc Sci Fit. 2019; 17(3): 81-90. doi: https://doi:10.1016/j.jesf.2019.04.001

36. Rodrigues JD, Ferreira D, Silva P, Caminha I, de Farias Junior JC. Inserção e atuação do profissional de educação física na atenção básica à saúde: revisão sistemática. Revista Brasileira de Atividade Física & Saúde, (2013); 18(1): 05-15. doi: http://dx.doi.org/10.12820/2317-1634.2013v18n1p5

37. Vuori IM, Lavie CJ, Blair SN. Physical activity promotion in the health care system. Mayo Clin Proc. 2013; 88(12): 1446-61 doi: https://doi:10.1016/j.mayocp.2013.08.020.

38. Sallis R, Franklin B, Joy L, Ross R, Sabgir D, Stone J. Strategies for promoting physical activity in clinical practice. Prog Cardiovasc Dis. 2015; 57(4): 375-86. doi: https://doi:10.1016/j.pcad.2014.10.003.

39. Khan KM, Weiler R, Blair SN. Prescribing exercise in primary care. BMJ. 2011; 343: d4141. doi: https://doi:10.1136/bmj.d4141

40. Das P, Horton R. Rethinking our approach to physical activity. Lancet. 2012; 380(9838): 189-90. doi: https/:doi:10.1016/S0140-6736(12)61024-1

41. Warburton D, Nicol CW, Bredin S. Health benefits of physical activity: the evidence. CMAJ Mar. 2006; 174(6): 801–9. doi: https://doi.org/10.1503/cmaj.051351

42. Santos SF, Benedetti TR, Medeiros TF, Freitas CE, Sousa TF, Costa JL. The work of physical education professionals in family health support centers (NASF): A national survey. Revista Brasileira de Cineantropometria e Desempenho Humano. 2015; 17(6): 693-703. doi: https://doi.org/10.5007/1980-0037.2015v17n6p693

43. Da Guarda FB, da Silva RN, Junior JL, Santana PR, Neto PM. Incorporação e contribuições dos profissionais de educação física ao Sistema Único de Saúde do Brasil. Tempus Actas de Saúde Coletiva. 2014; 8(3): 185–96. https://www.tempusactas.unb.br/index.php/tempus/article/view/1545

44. Pettican A, Southall-Edwards R, Reinhardt GY, Gladwell V, Freeman P, Low W, et al. Tackling physical inactivity and inequalities: implementing a whole systems approach to transform community provision for disabled people and people with long-term health conditions. BMC Public Health. 2024; 24(1): 636. doi: https://doi.org/10.1186/s12889-024-18051-6

45. Castro-Jiménez LE, Argüello-Gutiérrez YP, Camargo-Rojas DA. Actividad física en el marco de la atención primaria de salud, mirada desde los actores. Revista de Salud Pública. 2018; 20(4): 415-421. doi: https://doi.org/10.15446/rsap.V20n4.52556

46. Schuh LX, Brand C, Frantz SB, Garcia EL, Gaya AR, Roth MA. A inserção do profissional de educação física nas equipes multiprofissionais da estratégia saúde da familia. Revista Saúde (Santa Maria). 2015; 41(1): 29–36. doi: https://doi.org/10.5902/2236583410514

47. Moretti AC, Almeida V, Westphal MF, Bógus CM. Práticas corporais/atividade física e políticas públicas de Promoção da Saúde. Saúde Soci. 2009; 18(2): 346–54. doi: https://doi.org/10.1590/S0104-12902009002000017